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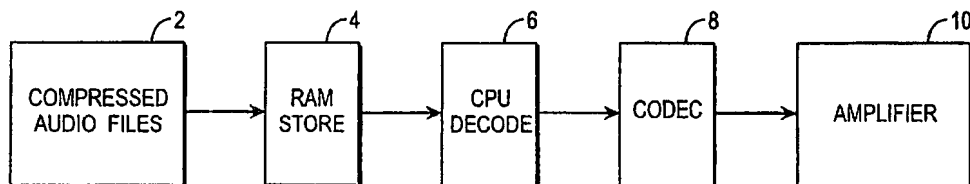
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(54) Title: **LOW POWER DIGITAL AUDIO DECODING/PLAYING SYSTEM FOR COMPUTING DEVICES**



(57) Abstract: A low-power digital audio decoding and playing system and method for computing devices provides a low-cost, low power-consumption, long-battery-life audio playing and decoding system, which may be used to play compressed audio files of various formats. In one aspect, a computer system adapted to play audio files comprises a system CPU (6), memory (4), at least one drive comprising compressed audio data (2), and an audio controller coupled to the system CPU (6), memory (4) and drive (2). The audio controller is adapted to cause the drive (2) to read the compressed audio data from the drive (2), to cause the system CPU (6) to decompress the compressed audio data from the drive (2) into decompressed audio data, to cause the decompressed audio to be stored in the memory (4), and to cause the decompressed audio data to be retrieved from the memory (4) for playing.

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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US01/44602

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : G06F 13/38

US CL : 710/68

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 710/68, 1, 100; 700/94

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,378,010 B1 (BURKS) 23 April 2002 (23.04.2002), abstract, figure 2, column 2 lines 17-32, column 4 lines 55-58, column 6 lines 40-49	1, 7, 8, 11, 12, 37, 53, 57-64
A	US 6,370,631 B1 (DYE) 09 April 2002 (09.04.2002), abstract, entire specification	1, 7, 8, 11, 12, 37, 53, 57-64
A	US 6,047,342 A (DEPEW) 04 April 2000 (04.04.2000), abstract	1, 7, 8, 11, 12, 37, 53, 57-64

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.**\* Special categories of cited documents:****"A"** document defining the general state of the art which is not considered to be of particular relevance**"B"** earlier application or patent published on or after the international filing date**"L"** document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)**"O"** document referring to an oral disclosure, use, exhibition or other means**"P"** document published prior to the international filing date but later than the priority date claimed**"T"**

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

**"X"**

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

**"Y"**

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

**"Z"**

document member of the same patent family

Date of the actual completion of the international search

12 August 2003 (12.08.2003)

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15 SEP 2003

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Form PCT/ISA/210 (second sheet) (July 1998)

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US01/44602

## Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claim Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claim Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claim Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:  
Please See Continuation Sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1, 7, 8, 11, 12, 37, 53, 57-64

Remark on Protest

☐  
☐

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

Form PCT/ISA/210 (continuation of first sheet(1)) (July 1998)

**BOX II. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING**

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1, 7, 8, 11, 12, 37, 53, 57-64, drawn to a computer system and method adapted to play audio files comprising a CPU, memory, a playlist software program, at least one drive having compressed audio data and operating systems.

Group II, claim(s) 13-19, drawn to a computer system and method for playing audio files having a CPU, memory, at least one drive having compressed audio data, operating systems and switches.

Group III, claim(s) 20-36, 38-49, 50-52, 54, and 55, drawn to a computer system for playing audio files having a CPU, memory, at least one drive comprising compressed audio data whereby the power state of the computer determines the operation of decompression and reproducing the audio files.

Group IV, claim(s) 2-6, 9, 10 and 56 drawn to a computer system and method for playing audio files having a CPU, memory, compressed audio data and operating systems.

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